AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (*Currently Amended*) A system comprising:

a first network node and a second network node connected via a communication link;

a plurality of processes resident ~~at least one process capable of execution~~ on said first network node and presently executing;

a plurality of monitors ~~first monitor~~ for said plurality of processes, each of said plurality of processes having one corresponding monitor from said plurality of monitors~~process~~, said corresponding monitors resident~~first monitor capable of execution~~ on said second network node and presently executing,

each monitor being configured for ~~said monitor capable of~~ detecting failure of its corresponding ~~said~~ process on said first network node and, if its corresponding process has failed, causing said failed process to execute on said second network node as a new process having a corresponding monitor executing on said first network node, while the remaining processes continue to execute on said first network node.

2. (*Original*) The system of claim 1, wherein said first and second network nodes are central processing units.

3. (*Original*) The system of claim 1, wherein said first and second network nodes are computer hosts.

4. (*Original*) The system of claim 1, wherein said first and second network nodes are computer servers.

5. (*Original*) The system of claim 1, wherein said first and second network nodes are storage nodes.

6. (*Original*) The system of claim 1, wherein said first and second network nodes are printer nodes.

7. (*Original*) The system of claim 1, wherein said first and second network nodes are file systems.

8. (*Original*) The system of claim 1, wherein said first and second network nodes are location independent file systems.

9. (*Original*) The system of claim 1, wherein said communication link is a local area network.

10. (*Original*) The system of claim 1, wherein said communication link is a wide area network.

11. (*Currently Amended*) The system of claim 1, wherein said monitors ~~first monitor~~ periodically check their corresponding processes ~~checks said process~~ executing on said first network node in order to detect a failure ~~of said process~~.

12. (*Currently Amended*) The system of claim 11, wherein said periodic checking comprises sending a key to said corresponding process and receiving a predefined response ~~from said process~~.

13. (*Currently Amended*) The system of claim 11, wherein said periodic checking comprises monitoring heartbeat signals sent at a periodic rate ~~from said process~~.

14. (*Currently Amended*) The system of claim 11, wherein, when one of said corresponding monitors ~~first monitor~~ detects a ~~the~~ failure ~~of said process~~, said one corresponding ~~first~~ monitor initiates a process swap, said process swap comprising:

terminating said failed process from executing ~~process from execution~~ on said first network node;

initiating said failed process as a new process executing ~~process~~ on said second network node;

initiating a new corresponding ~~second~~ monitor on said first network node that monitors said new process executing on said second network node; and

terminating said one corresponding ~~first~~ monitor executing ~~from execution~~ on said second network node.

15. (*Original*) The system of claim 1, wherein said process is selected from the group consisting of a service, a task and a thread.

16. (*Currently Amended*) A system comprising:

a first plurality of network nodes connected via a first communication link;

a second plurality of network nodes connected via a second communication link;

said first communication link and said second communication link connected through a third communication link.

a plurality of processes resident ~~process capable of execution~~ on one of the network nodes and presently executing;

a plurality of monitors for said plurality of processes, each of said plurality of processes having one corresponding monitor from said plurality of monitors, ~~monitor for~~ said corresponding monitors resident on another ~~process capable of execution on~~ one of the network nodes and presently executing,

each corresponding monitor being configured for ~~said monitor capable of~~ detecting failure of its corresponding ~~said~~ process and, if its corresponding process has

failed, causing said failed process to execute on another of the network nodes as a new process having a corresponding monitor executing on said one network node while the remaining processes continue to execute on said one network node.

17. (*Original*) The system of claim 16, wherein said network nodes are central processing units.

18. (*Original*) The system of claim 16, wherein said network nodes are computer hosts.

19. (*Original*) The system of claim 16, wherein said network nodes are computer servers.

20. (*Original*) The system of claim 16, wherein said network nodes are storage nodes.

21. (*Original*) The system of claim 16, wherein said network nodes are printer nodes.

22. (*Original*) The system of claim 16, wherein said network nodes are file systems.

23. (*Original*) The system of claim 16, wherein said network nodes are location independent file systems.

24. (*Original*) The system of claim 16, wherein said first communication link and said second communication link are local area networks.

25. (*Original*) The system of claim 16, wherein said third communication link is a wide area network.

26. (*Currently Amended*) The system of claim 16, wherein said corresponding monitors ~~first monitor~~ periodically check their ~~checks said~~ corresponding processes ~~process~~ executing on said one node of said first plurality of network nodes in order to detect a failure ~~of said process~~.

27. (*Currently Amended*) The system of claim 26, wherein said periodic checking comprises sending a key to said corresponding process and receiving a predefined response ~~from said process~~.

28. (*Currently Amended*) The system of claim 26, wherein said periodic checking comprises monitoring heartbeat signals sent at a periodic rate ~~from said process~~.

29. (*Currently Amended*) The system of claim 26, wherein, when one of said corresponding monitors ~~said first monitor~~ detects a ~~the~~ failure ~~of said process~~, said one corresponding ~~first~~ monitor initiates a process swap, said process swap comprising:

terminating said failed process from executing on said one network node~~process from execution~~;

transferring and initiating said failed process as a new process executing ~~process~~ on another network node;

initiating a new corresponding ~~second~~ monitor on another ~~the~~ network node that is not the same node as the node to which the failed process was transferred, wherein said new corresponding monitor monitors said new process; and

terminating said corresponding ~~first~~ monitor executing on said one network node~~from execution~~.

30. (*Currently Amended*) The system of claim 29, wherein, if said failed process initially executed on a network node connected to said first communication link, then said new process execution is initiated on a network node connected to said second communication link.

31. (*Currently Amended*) The system of claim 29, wherein, if said failed process initially executed on a network node connected to said second communication link, then

said new process execution is initiated on a network node connected to said first communication link.

32. (*Currently Amended*) The system of claim 29, wherein, if said one corresponding ~~first~~ monitor initially executed on a network node connected to said first communication link, then execution of said new corresponding ~~second~~ monitor is initiated on a node connected to said second communication link.

33. (*Currently Amended*) The system of claim 29, wherein, if said one corresponding ~~first~~ monitor initially executed on a network node connected to said second communication link, then execution of said new corresponding ~~second~~ monitor is initiated on a network node connected to said first communication link.

34. (*Original*) The system of claim 16, wherein said process is selected from the group consists of a service, a task and a thread.

35. (*Currently Amended*) A method for operating a failover system, wherein failover does not require the termination of all the processes executing on a first network node, the method comprising:

executing a plurality of processes resident ~~process~~ on the first network node;

executing a plurality of monitors for said plurality of processes, each of said plurality of processes having one corresponding monitor from said plurality of monitors

resident ~~first monitor~~ on a second network node, said second network node connected to said first network node via a communications link;

periodically checking the operation of said ~~process~~plurality of processes, said periodic checking performed by said plurality of corresponding monitors~~first monitor~~;

if an execution failure of a process of said plurality of processes ~~said process~~ is detected by its corresponding monitor, then

terminating execution of said failed process from executing ~~process~~ on said first network node while the remaining processes continue to execute on said first network node;

transferring and initiating execution of said failed process as a new process on said second network node;

initiating execution of a new corresponding ~~second~~ monitor for said new process on said first network node; and

terminating said corresponding ~~first~~ monitor of said failed monitor from executing on said first network node.

36. (*Original*) The method of claim 35, wherein said first and second network nodes are a central processing units.

37. (*Original*) The method of claim 35, wherein said first and second network nodes are computer hosts.

38. (*Original*) The method of claim 35, wherein said first and second network nodes are computer servers.

39. (*Original*) The method of claim 35, wherein said first and second network nodes are storage nodes.

40. (*Original*) The method of claim 35, wherein said first and second network nodes are printer nodes.

41. (*Original*) The method of claim 35, wherein said first and second network nodes are file systems.

42. (*Original*) The method of claim 35, wherein said first and second network nodes are location independent file systems.

43. (*Currently Amended*) The method of claim 35, wherein said communication link is a local area network~~LAN~~.

44. (*Currently Amended*) The method of claim 35, wherein said communication link is a wide area network~~WAN~~.

45. (*Original*) The method of claim 35, wherein said process is selected from the group consisting of a service, a task and a thread.

46. (*Currently Amended*) A computer system for ~~adapted to~~ controlling failover so that the termination of all the executing processes is not required, the computer system comprising:

a first network node and a second network node;

a memory comprising software instructions that ~~adapted to~~ enable the computer system to perform:

executing a plurality of processes resident ~~process~~ on the first network node;

executing a plurality of monitors for said plurality of processes, each of said plurality of processes having one corresponding monitor from said plurality of monitors resident ~~first monitor~~ on a second network node, said second network node connected to said first network node via a communications link;

periodically checking the operation of said ~~process~~plurality of processes, said periodic checking performed by said plurality of corresponding monitors~~first monitor~~;

if an execution failure of one process of said plurality of processes ~~said process~~ is detected by its corresponding monitor, then

terminating execution of said failed process from executing ~~process~~ on said first network node while the remaining processes continue to execute on said first network node;

transferring and initiating execution of said failed process as a new process on said second network node;

initiating execution of a new corresponding ~~second~~ monitor for said new process on said first network node; and

terminating said corresponding ~~first~~ monitor of said failed process from executing on said first network node.

47. (*Currently Amended*) A computer software product for a computer system comprising a first network node and a second network node to control failover so that the termination of all the processes executing on said first network node is not required, the computer program product comprising:

software instructions for enabling the computer system to perform predetermined operations, and a computer readable medium bearing the software instructions, said predetermined operations comprising:

executing a plurality of processes resident ~~process~~ on the first network node;

executing a plurality of monitors for said plurality of processes, each of said plurality of processes having one corresponding monitor from said plurality of

monitors resident ~~first monitor~~ on a second network node, said second network node connected to said first network node via a communications link;

periodically checking the operation of said ~~process~~plurality of processes, said periodic checking performed by said plurality of corresponding monitors~~first monitor~~;

if an execution failure of a process of said plurality of processes ~~said process~~ is detected its corresponding monitor, then

terminating execution of said failed process from executing ~~process~~ on said first network node while the remaining processes continue to execute on said first network node;

transferring and initiating execution of said failed process as a new process on said second network node;

initiating execution of a new corresponding ~~second~~ monitor for said new process on said first network node; and

terminating said corresponding ~~first~~ monitor of said failed process from executing on said first network node.

48-73. (*Cancelled*).

74. (*New*) A system comprising:

a first network node and a second network node connected via a communication link;

at least one application comprising a plurality of sub-processes resident on said first network node and presently executing;

a plurality of monitors for said plurality of sub-processes, each of said plurality of sub-processes having one corresponding monitor from said plurality of monitors, said plurality of monitors resident on said second network node and presently executing,

each corresponding monitor being configured for detecting failure of its corresponding sub-process of said application on said first network node and, if a corresponding sub-process has failed, causing said failed sub-process to execute on said second network node as a new sub-process having a corresponding monitor executing on said first network node while the remaining sub-processes continue to execute on said first network node.

75. (*New*) The system of claim 74, wherein said first and second network nodes are from the group comprising central processing units, computer hosts, computer servers, storage nodes, printer nodes, file systems and location independent file systems.

76. (*New*) The system of claim 74, wherein said communication link is a local area network or a wide area network.

77. (*New*) The system of claim 74, wherein said corresponding monitors periodically check their corresponding sub-processes executing on said first network node in order to detect a failure.

78. (*New*) The system of claim 77, wherein said periodic checking comprises sending a key to said corresponding sub-process and receiving a predefined response.

79. (*New*) The system of claim 77, wherein said periodic checking comprises monitoring heartbeat signals sent at a periodic rate.

80. (*New*) The system of claim 77, wherein, when one of said corresponding monitors detects a failure, said one corresponding monitor initiates a sub-process swap, said sub-process swap comprising:

terminating said failed sub-process from executing on said first network node;

initiating said failed sub-process as a new sub-process executing on said second network node;

initiating a new corresponding monitor on said first network node that monitors said new sub-process executing on said second network node; and

terminating said one corresponding monitor executing on said second network node.

81. (*New*) A system comprising:

a first plurality of network nodes connected via a first communication link;

a second plurality of network nodes connected via a second communication link;

said first communication link and said second communication link connected through a third communication link.

at least one application comprising a plurality of sub-processes resident on one of the network nodes and presently executing;

a plurality of monitors for said plurality of sub-processes, each of said plurality of sub-processes having one corresponding monitor from said plurality of monitors, said plurality of monitors resident on one of the network nodes and presently executing,

each corresponding monitor being configured for detecting failure of its corresponding sub-process and, if a corresponding sub-process has failed, causing said failed sub-process to execute on another of the network nodes as a new sub-process having a corresponding monitor while the remaining sub-processes continue to execute on said one network node where resident.

82. (*New*) The system of claim 81, wherein said network nodes are from the group comprising central processing units, computer hosts, computer servers, storage nodes, printer nodes, file systems and location independent file systems.

83. (*New*) The system of claim 81, wherein said first communication link, said second communications link and said third communication link are local area networks, wide area networks or a combination of both a local area network and a wide are network.

84. (*New*) The system of claim 81, wherein said corresponding monitors periodically check said sub-process executing on said one node of said first plurality of network nodes in order to detect a failure.

85. (*New*) The system of claim 84, wherein said periodic checking comprises sending a key to said sub-process and receiving a predefined response.

86. (*New*) The system of claim 84, wherein said periodic checking comprises monitoring heartbeat signals sent at a periodic rate.

87. (*New*) The system of claim 84, wherein, when one of said corresponding monitors detects a failure, said one corresponding monitor initiates a sub-process swap, said sub-process swap comprising:

terminating said failed sub-process from executing on said one network node;

transferring and initiating said failed sub-process as a new sub-process executing on another network node;

initiating a new corresponding monitor on another network node that is not the same node as the node to which the failed sub-process was transferred, wherein said new corresponding monitors said new sub-process; and

terminating said one corresponding monitor executing on said one network node.

88. (*New*) The system of claim 87, wherein, if said failed sub-process initially executed on a network node connected to said first communication link, then said new sub-process execution is initiated on a network node connected to said second communication link.

89. (*New*) The system of claim 87, wherein, if said failed sub-process initially executed on a network node connected to said second communication link, then said new sub-process execution is initiated on a network node connected to said first communication link.

90. (*New*) The system of claim 87, wherein, if said one corresponding monitor initially executed on a network node connected to said first communication link, then execution of said new corresponding monitor is initiated on a node connected to said second communication link.

91. (*New*) The system of claim 87, wherein, if said one corresponding monitor initially executed on a network node connected to said second communication link, then execution of said new corresponding monitor is initiated on a network node connected to said first communication link.

92. (*New*) A method for operating a failover system, wherein failover does not require the termination of all the sub-processes executing on a first network node, the method comprising:

executing at least one application comprising a plurality of sub-processes, said at least one application resident on the first network node;

executing a plurality of monitors for said plurality of sub-processes, each of said plurality of sub-processes having one corresponding monitor from said plurality of monitors, said plurality of monitors resident on a second network node, said second network node connected to said first network node via a communications link;

periodically checking the operation of said application, said periodic checking performed by said plurality of corresponding monitors;

if an execution failure of a sub-process of said application is detected by its corresponding monitor, then

terminating execution of said failed sub-process from executing on said first network node while the remaining sub-processes continue to execute on said first network node;

transferring and initiating execution of said failed sub-process as a new sub-process on said second network node;

initiating execution of a new corresponding monitor for said new sub-process on said first network node; and

terminating said corresponding monitor of said failed sub-process from executing on said first network node.

93. (*New*) The method of claim 92, wherein said first and second network nodes are from the group comprising central processing units, computer hosts, computer servers, storage nodes, printer nodes, file systems and location independent file systems.

94. (*New*) The method of claim 92, wherein said communication link is a local area network or a wide area network.

95. (*New*) A computer system for controlling failover so that the termination of all the executing processes is not required, the computer system comprising:

a first network node and a second network node;

a memory comprising software instructions that enable the computer system to perform:

executing at least one application comprising a plurality of sub-processes, said at least one application resident on the first network node;

executing a plurality of monitors for said plurality of sub-processes, each of said plurality of sub-processes having one corresponding monitor from said plurality of monitors, said plurality of monitors resident on a second network node, said second network node connected to said first network node via a communications link;

periodically checking the operation of said application, said periodic checking performed by said plurality of corresponding monitors;

if an execution failure of a sub-process of said application is detected by its corresponding monitor, then

terminating execution of said failed sub-process from executing on said first network node while the remaining sub-processes continue to execute on said first network node;

transferring and initiating execution of said failed sub-process as a new sub-process on said second network node;

initiating execution of a new corresponding monitor for said new sub-process on said first network node; and

terminating said corresponding monitor of said failed sub-process from executing on said first network node.

96. (*New*) A computer software product for a computer system comprising a first network node and a second network node to control failover so that the termination of all

the sub-processes executing on said first network node is not required, the computer program product comprising:

software instructions for enabling the computer system to perform predetermined operations, and a computer readable medium bearing the software instructions, said predetermined operations comprising:

executing at least one application comprising a plurality of sub-processes, said at least one application resident on the first network node;

executing a plurality of monitors for said plurality of sub-processes, each of said plurality of sub-processes having one corresponding monitor from said plurality of monitors, said plurality of monitors resident on a second network node, said second network node connected to said first network node via a communications link;

periodically checking the operation of said application, said periodic checking performed by said plurality of corresponding monitors;

if an execution failure of a sub-process of said application is detected by its corresponding monitor, then

terminating execution of said failed sub-process from executing on said first network node while the remaining sub-processes continue to execute on said first network node;

transferring and initiating execution of said failed sub-process as a new sub-process on said second network node;

initiating execution of a new corresponding monitor for said new sub-process on said first network node; and

terminating said corresponding monitor of said failed sub-process from executing on said first network node.